



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/678,226	10/06/2003	Francis Anthony Darmann	BSW.007C	1569

30636 7590 12/15/2004
FAY KAPLUN & MARCIN, LLP
150 BROADWAY, SUITE 702
NEW YORK, NY 10038

EXAMINER

PATEL, ISHWARBHAI B

ART UNIT PAPER NUMBER

2841

DATE MAILED: 12/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/678,226

Applicant(s)

DARMANN ET AL.

Examiner

Ishwar (I. B.) Patel

Art Unit

2841

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5,7-9 and 11-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5,7-9 and 11-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date September 20, 2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed September 20, 2004 have been fully considered but they are not persuasive. Applicant argues on page 9 and 10, that applied prior art of Scudiere et al, does not teach or suggest the composite superconducting tape is diffusion bonded together. The applicant further argues that the diffusion bonding limitation eliminates the need for a metal wrapping tape or a laminate to hold the stacks of superconducting tape together. However, these are structural claims and the applied prior art of Scudiere et al. discloses the structure as claimed. The applicant does not state any specific structural difference created by using the diffusing bonding process. The rejection is maintained.

Priority

2. The certified copy the priority document (the copy of the British application) has yet not been received, though claimed by the applicant as being submitted with the response filed on September 20, 2004. Applicant is advised to submit the copy of the documents.

Claim Objections

3. Claims 1 and 11 are objected to because of the: The limitation "the composite superconducting tape is diffusion bonded **together**" is not clear. In light of the disclosure

the examiner considered the constituent superconducting tapes are diffusion bonded together. The prior art applied accordingly.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-2, 9, 11, 12 and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Scudiere et al., US Patent No. 6,110,606.

Regarding claim 1, Scudiere et al., discloses a composite superconducting tape (ceramic conductor 10, figure 1 and 4) comprising: A multiplicity of constituent superconducting tapes (superconducting ceramic tape 12, figure 1 and 4) stacked parallel to one another with major faces in contact so as to form a series of stacks (figure 1 and figure 4), wherein at least some of the constituent superconducting tapes have widths not greater than half a width of the composite superconducting tape and are laid edge to edge with each other (see figure 4 and 1), the composite superconducting tape including at least one tape (laminates 14 and 16) bridging the stacks (figure 4 and 1, column 5, line 31-36 and column 3, line 9-22).

Scudiere et al., does not disclose the constituting superconducting tape are diffusion bonded together. However, diffusion bonding is a process limitation in a product claim. This is a structural claim and applied prior art of Scudiere et al., discloses the structure. Such a process limitation defines the claimed invention over the prior art only to the degree that it defines the product itself. A process limitation cannot serve to patentably distinguish the product over the prior art, in the case that the product is the same as, or obvious over, the prior art. See Product-by-Process in MPEP § 2113 and 2173.05(p) and *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985).

Regarding claim 2, Scudiere et al., further discloses all the constituent superconducting tapes (12, figure 4) have a width that is substantially a simple fraction of the width of the composite superconducting tape so that the constituent superconducting tapes form two or more stacks with aligned zones there between which contain no superconducting material (see figure 4 with three stacks).

Regarding claim 9, Scudiere et al., further discloses the constituent superconducting tapes are all powder-in-tube superconducting (column 3, line 35-40).

Regarding claim 11, Scudiere et al., discloses a composite superconducting tape constructed from a plurality of superconducting tapes each having two opposite major faces and two opposite edges extending between the major faces, the composite superconducting tape (see, figure 4 and figure 1) including:

a first stack having a plurality of the superconducting tapes (12) wherein each superconducting tape in the first stack has at least one major face in contact with a major face of an adjacent superconducting tape in the first stack (see figure 4),

a second stack having a plurality of superconducting tapes (12) wherein each superconducting tape in the second stack has at least one major face in contact with a major face of an adjacent superconducting tape in the second stack, wherein at least some of the superconducting tapes have widths not greater than half a width of the composite superconducting tape (figure 4); and

at least one bridging tape spanning between the first and second stacks for maintaining the first and second stacks in a substantially parallel edge-to-edge configuration (bridging tape 14 and 16, see figure 4 and 1, column 5, line 31-36 and column 3, line 9-22).

Scudiere et al., does not disclose the constituting superconducting tape are diffusion bonded together. However, diffusion bonding is a process limitation in a product claim. This is a structural claim and applied prior art of Scudiere et al., discloses the structure. Such a process limitation defines the claimed invention over the prior art only to the degree that it defines the product itself. A process limitation cannot serve to patentably distinguish the product over the prior art, in the case that the product is the same as, or obvious over, the prior art. See Product-by-Process in MPEP § 2113 and 2173.05(p) and In re Thorpe, 227 USPQ 964, 966 (Fed. Cir. 1985).

Regarding claim 12, Scudiere et al., further discloses all the superconducting tapes (12, figure 4) have a width that is substantially a simple fraction of the width of the composite superconducting tape so that the superconducting tapes form at least the first and second stacks with aligned zones there between which contain no superconducting material (see figure 4 with three stacks).

Regarding claim 18, Scudiere et al., further discloses the superconducting tapes are all powder-in-tube superconducting (column 3, line 35-40).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4-5, 7-8 and 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scudiere et al., as applied to claims 1-2 and 9 above, and further in view of Gamble et al., US Patent No. 5,801,124.

Regarding claim 4, Scudiere et al., discloses at least one bridging tape with full width of composite superconducting tape (column 3, line 60-65), however, fails to explicitly disclose that the bridging tapes are silver or silver alloy material.

However, Scudiere et al., further discloses that the tapes are selected to provide support structure (column 1, line 50-52) along with thermal and electrical conductivity, preferably stainless steel tapes and further discloses that other metal tapes are also suitable (column 3, line 55-62).

Gamble et al., discloses superconductor composite with silver cladding tape, column 11, line 57-58, including two cladding tapes, figure 4, and further discloses that material and thickness for cladding tapes will be selected in relation to the material and thickness of the superconducting tape and a predetermined load to control the maximum strain on superconducting portion by offsetting the neutral axis of the combined tape (column 9, line 34-67).

Also, it has been held to be to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide the composite of Scudiere et al., with bridging tape made of silver, from the teachings of Gamble et al., in order to have the support structure to control the maximum strain to the superconducting material because Scudiere et al., further discloses that other metal tapes are also suitable to provide support structure, along with thermal and electrical conductivity.

Regarding claim 5, the combination of Scudiere et al., and Gamble et al., further discloses two full-width metal bridging tapes, one bridging tape (14) at one end of the stacks and second bridging tape (16) at another end of the stacks, (laminates 14 and 16, see figure 4 and 1 of Scudiere et al., and top and bottom cladding plates, figure 4 of Gamble et al.).

Regarding claim 7, the applicant is further claiming the respective bending strength of the two full widths metal tapes is unequal.

Scudiere et al., in the disclosed embodiment, fails to disclose the tapes with unequal bending strength. However, Scudiere further discloses that tapes (laminates 14 and 16) with different thickness can be used depending upon the required protection of the superconducting tape against the bending strain and will be within the scope of the invention, (column 6, line 4-14) and the tapes with different thickness will have different bending moment.

Gamble et al., as applied to claim 4 above discloses the material and thickness of both the cladding tape will be selected in relation to the material and thickness of the superconducting tape and a predetermined load to control the maximum strain on superconducting portion by offsetting the neutral axis of the combined tape (column 9, line 34-67).

A person of ordinary skill in the art, at the time the invention was made, would have been motivated to select a material and thickness of the cladding tape of Scudiere to control the strain of the superconducting tapes.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide the composite of Scudiere et al., with bridging tapes with unequal bending strength, from the teachings of Gamble et al., in order to have support structure to control the strain on the superconducting material, because Scudiere et al., further discloses that tapes with different thickness can be used depending upon the required protection of the superconducting tape against the bending strain and will be within the scope of the invention and the tapes with different thickness will have different bending moment.

Regarding claim 8, the combination of Scudiere et al. and Gamble et al., discloses all the features of the claimed invention, including all elongate components extend longitudinally, as applied to claims 1-2, 4-5, 7 and 9, but fails to disclose the superconducting tape is diffusion-bonded. However, diffusion bonding is a process limitation in a product claim. This is a structural claim and applied prior art of Scudiere et al., discloses the structure. Such a process limitation defines the claimed invention over the prior art only to the degree that it defines the product itself. A process limitation cannot serve to patentably distinguish the product over the prior art, in the case that the product is the same as, or obvious over, the prior art. See Product-by-Process in MPEP § 2113 and 2173.05(p) and *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985).

Regarding claim 14, Scudiere et al., discloses the bridging tape a full width of composite superconducting tape (column 3, line 60-65), however, fails to explicitly disclose the bridging tapes are silver or silver alloy material.

However, Scudiere et al., further discloses that the tapes are selected to provide support structure (column 1, line 50-52) along with thermal and electrical conductivity, preferably stainless steel tapes (column 3, line 55-62), and further discloses that other metal tapes are also suitable.

Gamble et al., discloses superconductor composite with silver cladding tape, column 11, line 57-58, including two cladding tapes, figure 4, further discloses that material and thickness for cladding tapes will be selected in relation to the material and thickness of the superconducting tape and a predetermined load to control the maximum strain on superconducting portion by offsetting the neutral axis of the combined tape (column 9, line 34-67).

Also, it has been held to be to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide the composite of Scudiere et al., with bridging tape made of silver, from the teachings of Gamble et al., in order to have the support structure to control the maximum strain to the superconductor because

Scudiere et al., further discloses that other metal tapes are also suitable to provide support structure, along with thermal and electrical conductivity.

Regarding claim 15, the combination of Scudiere et al., and Gamble et al., further discloses two full-width metal bridging tapes, one bridging tape (14) at one end of the stacks and second bridging tape (16) at another end of the stacks, (laminates 14 and 16, see figure 4 and 1 of Scudiere et al., and top and bottom cladding plates, figure 4 of Gamble et al.).

Regarding claim 16, the applicant is further claiming the respective bending strength of the two full widths metal tapes is unequal.

Scudiere et al., in the disclosed embodiment, fails to disclose the tapes with unequal bending strength. However, further discloses that tapes (laminates 14 and 16) with different thickness can be used depending upon the required protection of the superconducting tape against the bending strain and will be within the scope of the invention, (column 6, line 4-14), and the tapes with different thickness will have different bending moment.

Gamble et al., as applied to claim 4 above discloses the material and thickness of both the cladding tape will be selected in relation to the material and thickness of the superconducting tape and a predetermined load to control the maximum strain on superconducting portion by offsetting the neutral axis of the combined tape (column 9, line 34-67).

A person of ordinary skill in the art, at the time the invention was made, would be motivated to select a material and thickness of the cladding tape of Scudiere to control the strain of the superconducting tapes.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide the composite of Scudiere et al., with bridging tapes with unequal bending strength, from the teachings of Gamble et al., in order to have support structure to control the strain on the superconducting material because Scudiere et al., further discloses that tapes with different thickness can be used depending upon the required protection of the superconducting tape against the bending strain and will be within the scope of the invention and the tapes with different thickness will have different bending moment.

Regarding claim 17, the combination of Scudiere et al. and Gamble et al., discloses all the features of the claimed invention, including all elongate components extend longitudinally, as applied to claims 11, but fails to disclose the superconducting tape is diffusion-bonded. However, diffusion bonding is a process limitation in a product claim. This is a structural claim and applied prior art of Scudiere et al., discloses the structure. Such a process limitation defines the claimed invention over the prior art only to the degree that it defines the product itself. A process limitation cannot serve to patentably distinguish the product over the prior art, in the case that the product is the same as, or obvious over, the prior art. See Product-by-Process in MPEP § 2113 and 2173.05(p) and *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985).

6. Claims 3 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Scudiere et al., and Gamble et al., as applied to claims 1-2, 4-5, 7 and 9 above, and further in view of Fujikami et al., US Patent No. 6,305,069 and Riley, US Patent No. 6,218,340.

Regarding claim 3, the applicant is further claiming the simple fraction is a half, so that there are two stacks.

The combination of Scudiere et al., and Gamble et al., do not disclose the simple fraction as a half, resulting in two stacks in the composite.

Scudiere et al., discloses three stacks of constituent superconducting tapes (figure 4).

Gamble et al., discloses eight stacks constituent superconducting tapes (figure 4).

Riley discloses two stacks arranged side-by-side, (see figure 4, column 4, line 32-45).

Fujikami et al., discloses number of stacks, see figure 2, 5, 6.

A person of ordinary skill in the art at the time the invention was made would be motivated to select the desired number of stacks depending upon the final dimension of the composite for the desired current carrying capacity, and if two stacks selected,

individual stacks will be half the width of the composite, as the tapes are cut into pieces from the same monofilament wires.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made, to provide the composite of Scudiere et al., and Gamble et al., with two stacks of constituent superconducting tapes, each stack with identical size resulting in the fraction as half of the composite width, from the teachings of Riley and Fujikami et al., in order to have the composite structure with desired width with the required current carrying capacity.

Regarding claim 13, the applicant is further claiming the simple fraction is a half, so that there are two stacks.

The combination of Scudiere et al., and Gamble et al., fails to disclose the simple fraction as a half, resulting in two stacks in the composite.

Scudiere et al., discloses three stacks of constituent superconducting tapes (figure 4).

Gamble et al., discloses eight stacks constituent superconducting tapes (figure 4).

Riley discloses two stacks arranged side-by-side, (see figure 4, column 4, line 32-45).

Fujikami et al., discloses number of stacks, see figure 2, 5, 6.

A person of ordinary skill in the art at the time the invention was made would be motivated to select the desired number of stacks depending upon the final dimension of

Art Unit: 2841

the composite for the desired current carrying capacity, and if two stacks selected, individual stacks will be half the width of the composite, as the tapes are cut into pieces from the same monofilament wires.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made, to provide the composite of Scudiere et al., and Gamble et al., from the teachings of Riley and Fujikami et al., with two stacks of constituent superconducting tapes, each stack with identical size resulting in the fraction as half of the composite width, in order to have the composite structure with desired width with the required current carrying capacity.

Conclusion

6. Applicant's amendment necessitated the new ground(s) / new explanation of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 2841


the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ishwar (I. B.) Patel whose telephone number is (571) 272 1933. The examiner can normally be reached on M-F (8:30 - 5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on (571) 272 1957. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

I B Patel
Examiner
GAU: 2827
December 12, 2004



KAMAND CUNEO
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800